

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problems Mailbox.**

**This Page Blank (uspto)**

A mechanical joint splice and method for the concrete reinforcement. Place the one pair of knob (10, 10') onto the two axially aligned adjacent reinforcing rod ends (1, 1'). The reinforcing rods contacting portions of the knob (11, 11') are shaped outer side of the reinforcing rods (2, 2') and screw taping over by the outer sleeves (20, 20'), which have shaped taping screwed (21, 21') on the connecting portions of the sleeves. The sleeves are previously slipped onto the both reinforcing rods.

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

A MECHANICAL JOINTING METHOD OF TWO REINFORCING RODS AND AN  
APPARATUS THEREFORE

TECHNICAL FIELD

- 5 This invention is related mechanical joint for two reinforcing rods and method of concrete structure construction.

BACKGROUND ART

- 10 It is known to using on connecting two reinforcing rods for the concrete structure construction, which are arranged between the ends of two reinforcing rods. Steel reinforcing rods used in poured concrete construction need to be joined end-to-end so as to make up a longer rod length and a single continues rod of equivalent length. Conventional splices are made by means of an internally threaded sleeve to makes
- 15 screw engagement with by each of two reinforcing rod ends to be joined. Such a splices are requires that at least one of reinforcing rod be rotated relative to the splice sleeve. It may require turning by hand heavy and long steel reinforcing rods, sometimes under difficult field conditions. Because of these and other reasons, reinforcing rods splice systems need to be installed easy and without turning either of the two
- 20 reinforcing rods being joined. The present invention is an improvement over such splices, especially in more quicker and easy installation.

DISCLOSURE OF INVENTION

- The one of current method of reinforcement rods splicing requires machinery for
- 25 threading reinforcing rod portions, skilled technician for the machinery and require many parts for splicing system. This method of splicing is increase construction labor cost and time. The purpose of this invention is providing reinforcing rods splicing method and splice, which is reducing problem as aforementioned and improve strength of reinforcing rods splicing sections. In accordance with the present invention, this reinforcing rods
- 30 splice is developed for connecting the end of two axially aligned reinforcing rods portions, which is natural shape of reinforcing rods.

It is using at a two knob sections each having an inner side conforming to the reinforcing rod surface portions. A taper sleeves, which are making tapping screw engagement and secure these knob sections. This invention will reduce construction time and labour cost.

- 2 -

BRIEF DESCRIPTION OF DRAWINGS

The nature and mode of assembling of preferred embodiment of the present invention will now be more fully described in the following detailed description, take with the accompanying drawings wherein:

5

Figure 1 is an exploded perspective view of a presently preferred form of the reinforcing rods splice;

Figure 2 is a side view, completely in section, of the splice of Fig. 1 in fully assembled condition without reinforcing rods;

10 Figure 3a is a side view, partly in section, of the splice of Fig. 1 in partially assembled condition;

Figure 3b is a side view, completely in section, of the splice of Fig. 1 in fully assembled condition with reinforcing rods;

15 BEST MODE FOR CARRYING OUT THE INVENTION

An exemplary embodiment of a reinforcement rods splice is explained as follow. Slip over the two taper sleeves 21,22' shown are to the two axially aligned concrete reinforcing rods 1,1'. Setting up the concrete reinforcing rods horizontally or perpendicularly on the basis of reinforcing rods ribs 2,2' and face each end portions of the reinforcing rods 1,1'. The splice joint assembly includes a pair of knob 10,10' which has inclined planes 12,12'. Place the pair of knob 10,10' on the reinforcing rods ribs 2,2', which are shaped inner side of the reinforcing rods portions 11,11'. An outer sleeves 22,22', previously slipped axially onto both reinforcing rods 1,1'. Screwing female sleeve 20 into sleeve 21'. The inclined planes of sleeves 20,20' change the directions of kinetic energy into perpendicular direction and secure and tightly hold both knob 12,12'.

25

The best way to make strong engagement in an axial direction between each knob 12,12' and both reinforcing rods 1,1', the knobs inner sides 11,11' are shaped little more bigger than reinforcing rods ribs 2,2' and have opposite incline planes. In the manner shown in Figure 2, it is for give enough space to irregular size of reinforcing rods ribs

30

and if reinforcing rods ribs are in regular shape, place the one side knob to up and down directions against the other knob. The Figure 3a is partially assembled condition of this invention. It is shown as Figure 3 both sleeves are not completely connected. Both reinforcing rods ribs and the knobs inner sides are not completely contact each other. But, as shown as Figure 3b, after the complete connections of both sleeves, the

35

reinforcing rods ribs and the knobs are contact each other because of inclined planes of

- 3 -

knobs are compressed by inclined planes of sleeves 20,20' inner side.

Therefore, the both inner side of knobs 10,10' are compressing the reinforcing rods outer portions 1,1' and connecting both reinforcing rods. Also, both sleeves 20,20' have partially knurling shaped on the outer side of screw tapping portions 3,3' for prevent

- 5 slipping when screwing the both sleeves and increase screw turning power. The present invention of reinforcement rods splice and method is providing more binding power and fast splicing. Thus,

- 4 -

**WHAT IS CLAIMED IS:****1. A method of reinforcing rods splicing:**

Place the one pair of knob to outer portions of each reinforcing rods, wherein inner side of said knob is shaped same incline plane to said reinforcing rod ribs and outer side of said reinforcing rod portions, connect with screw taper sleeves which is said sleeves shaped same incline plane to outer portions of the said knob, said sleeves are moving back and forth and pressing the incline plane to said the knob outer portions, a said knobs provides the directions of the kinetic energy into perpendicular directions and compressing and hold on the axial direction of said reinforcing rods.

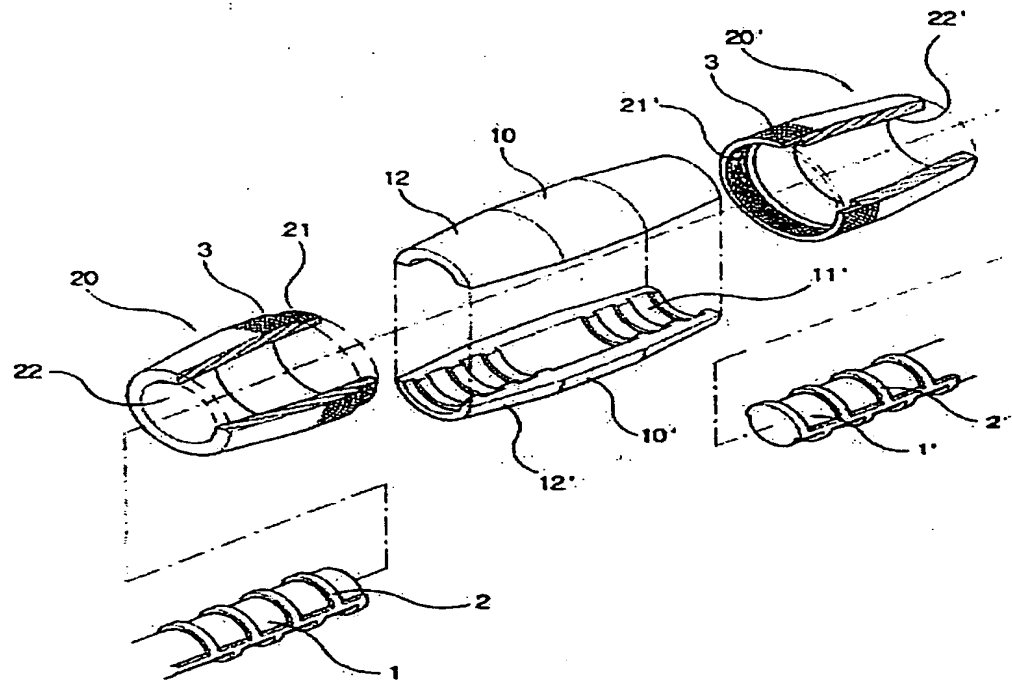
**2. Splice for reinforcing rods splicing:**

A pair of knob (10,10'), wherein shaped same incline plane of the reinforcing rods ribs and inner side of said the reinforcing rods ribs (11,11') into, a sleeves (20,20') which are shaped incline plane whereon, contacting surface of said the knob outer portions. Such special splice that, which is connecting portions of said sleeves are taping screwed (21,21') which makes screw-taping engagement.

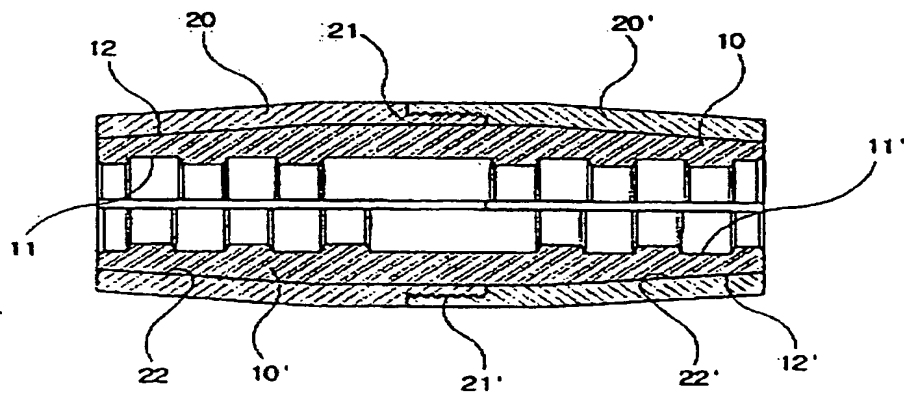


DRAWING

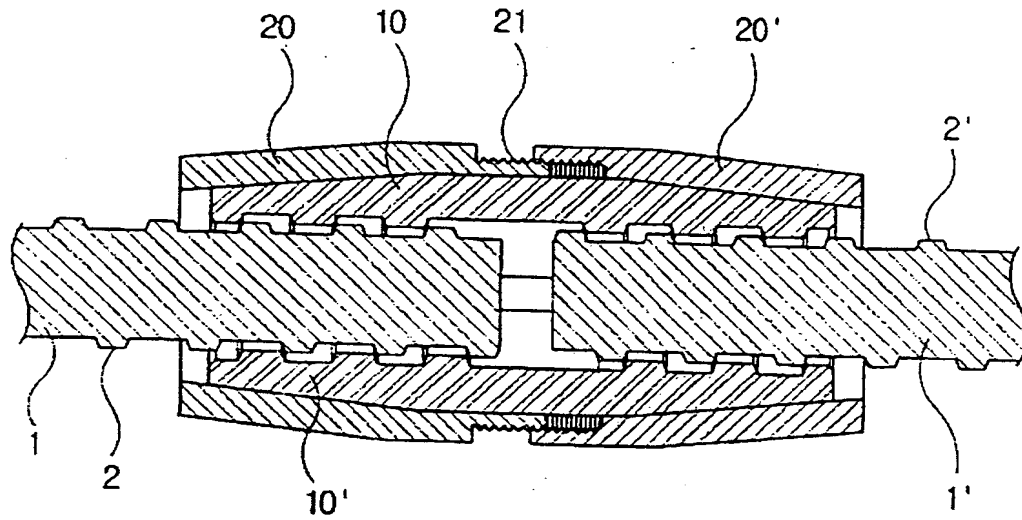
[Fig.1]



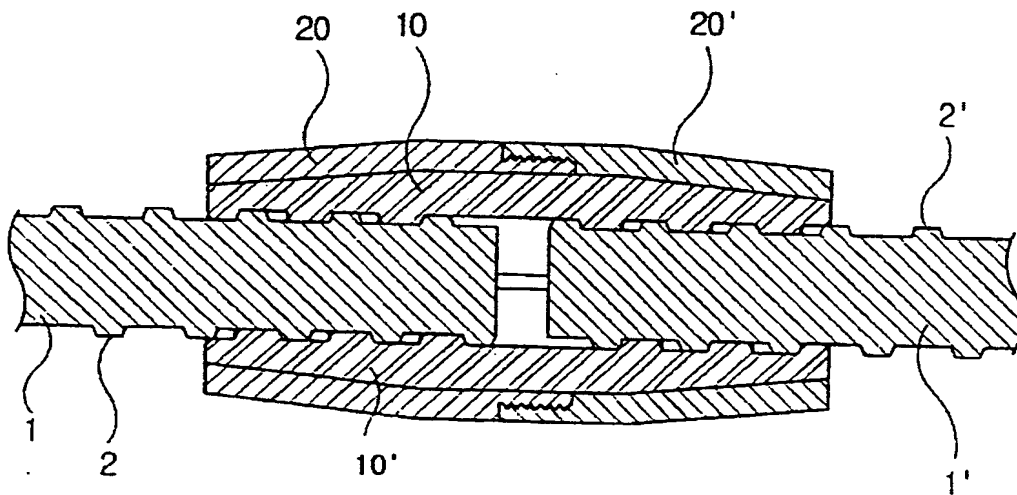
[Fig.2]



【도 3a】



【도 3b】



## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR00/00379

**A. CLASSIFICATION OF SUBJECT MATTER****IPC7 E04C 5/18**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC7 E04C 5/18

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

KR, JP : E04C

Japanese Utility model application for Utility model since 1967

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP, 52-99615 Y (NIPON KOKANGTCHDE KK,) 28, JULY, 1977 (28, 07, 1977), claim, figure 1	1, 2
X	JP, 51-65510 Y (SINKOSEKO KK,) 24, MAY, 1976 (24, 05, 1976), figure 12	1, 2
Y	JP, 60-108625 Y (SINNIPON SEDETCR KK,) 24, JULY, 1985 (24, 07, 1985), figures 4	1, 2
Y	JP, 56-162721 Y (SINKOSEKO KK,) 03, DECEMBER, 1981 (03, 12, 1981), figures 3 - 7	1, 2
Y	JP, 52-60125 Y (KOUUBU KK,) 02, MAY, 1977 (02, 05, 1977), claim, figure 1	1, 2
A	JP, 53-104011 Y (OUYALIIHWA) 22, AUGUST, 1978 (22, 08, 1978), claim, figure 1	1, 2
A	JP, 62-63318 Y (ROKUDOU CONSTRUCTION KK,) 20, APRIL, 1987 (20, 04, 1987), claim, figures 1-4	1, 2

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

## \* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

28 JULY 2000 (28.07.2000)

Date of mailing of the international search report

28 JULY 2000 (28.07.2000)

Name and mailing address of the ISA/KR

Korean Industrial Property Office  
Government Complex-Taejon, Dunsan-dong, So-ku, Taejon  
Metropolitan City 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

JANG, Hyung Il

Telephone No. 82-42-481-5798



**This Page Blank (uspto)**